EXPLORING THE FACTORS INFLUENCING CURRICULUM DEVELOPMENT FOR 21ST CENTURY SKILLS: A GROUNDED THEORY STUDY

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ABSTRACT

This qualitative grounded theory study investigates the multifaceted factors influencing curriculum development tailored for 21st-century skills within the educational system of Sindh, Pakistan. In the face of a progressively complex and dynamic global landscape, there's an urgent need to equip students with competencies vital for navigating the challenges and opportunities of the modern era. Employing grounded theory methodology, the research delves into the intricate interplay of elements shaping curriculum development processes. Through in-depth interviews and document analysis, key themes and categories emerge, culminating in the construction of a theoretical framework. The study identifies several influential factors including educational policy, societal demands, technological advancements, teacher expertise, student needs, and stakeholder collaboration. Iterative data analysis uncovers the nuanced relationships among these factors and their impact on curriculum development. Moreover, the study acknowledges the contextual influences such as cultural, social, economic, and political dynamics on curriculum design. The implications of these findings extend to educational policymakers, curriculum developers, teachers, and stakeholders, advocating for a comprehensive approach that fosters collaboration and considers diverse factors in designing curricula aimed at preparing students effectively for the 21st century challenges and opportunities.

Keywords: grounded theory, curriculum development, 21st century skills, qualitative research

INTRODUCTION

In today's rapidly evolving world, education systems face the formidable challenge of preparing students for a future characterized by constant change and complexity (González-Pérez & Ramírez-Montoya, 2022; Martinez, 2022). As the demands of the 21st century workforce continue to shift, there is an increasing recognition that traditional curricula must be adapted to cultivate the essential skills and competencies needed for success in the modern era (Meyer & Norman, 2020). This realization has prompted a surge of interest in curriculum development for 21st century skills, with teachers s, policymakers, and researchers striving to uncover the factors that influence the design and implementation of such curricula. The purpose of this study is to delve into the intricate process of curriculum development for 21st century skills and explore the various factors that shape its trajectory. By employing a grounded theory approach; as indicated by Engler (2021), this research seeks to generate a comprehensive understanding of the underlying dynamics, influences, and decision-making processes involved in shaping curricula geared towards equipping students with the necessary skills for the challenges they will face in the 21st century. The study adopts a qualitative methodology, as indicated by Charmaz and Thornberg (2021), utilizing interviews, focus groups,

and document analysis to gather data from a diverse range of stakeholders involved in curriculum development, including teachers, curriculum designers, policymakers, and industry professionals. Through an iterative process of data collection and analysis, this research aims to identify key themes, patterns, and relationships that emerge, allowing for the formulation of a grounded theory that captures the complex interplay of factors impacting curriculum development for 21st century skills (Stough & Lee, 2021).

Understanding the factors that influence curriculum development for 21st century skills is crucial for educational institutions and policymakers as they strive to meet the evolving needs of students and society (González-Pérez & Ramírez-Montoya, 2022). This research has the potential to inform decision-making processes, provide insights into effective strategies for curriculum design, and contribute to the advancement of educational practices aimed at preparing students for the demands of an increasingly interconnected and technology-driven world. In the subsequent sections, we will dive deep into the existing literature on 21st century skills and curriculum development, outline the research design and methodology, present the findings and analysis, and conclude with implications for practice and recommendations for future research. By shedding light on the factors influencing curriculum development for 21st century skills, this study focuses to contribute to the ongoing discourse on educational innovation and the cultivation of skills that are essential for success in the rapidly evolving landscape of the 21st century.

Problem Statement

In the context of Sindh, Pakistan, for the rapidly evolving landscape of education, there is a growing need to understand the factors that influence curriculum development for 21st-century skills. As the demands of the workforce and society continue to shift, teachers and policymakers face the challenge of preparing students for a future characterized by technological advancements, globalization, and changing social dynamics (Martinez, 2022; Hussain et al., 2022). However, as indicated by Zahoor and Rumi (2020); Shah (2022), the existing research on curriculum development for 21st-century skills often lacks a comprehensive understanding of the underlying factors that inform decision-making

processes and shape the content and structure of curricula. Similarly, in the context of Sindh, Pakistan, there little research has been conducted regarding understanding the factors that influence curriculum development for 21st-century skills. Resultantly, this knowledge gap presents a significant obstacle to effective curriculum design, as teachers, leaders, and policymakers require evidence-based insights to develop curricula that align with the needs of the 21st-century teaching and learning strategies. Without a deep understanding of the factors that influence curriculum development, there is a risk of creating curricula that are outdated, fail to address the needs of diverse learners, or overlook essential skills and competencies crucial for success in the modern world (Gul & Khilji, 2020).

Therefore, this grounded theory study aims to investigate and identify the multifaceted factors that influence curriculum development for 21st-century skills. By employing a qualitative research approach grounded in empirical data, this study has explored the perspectives of key stakeholders, including teachers, leaders, curriculum developers, policymakers, and students. By examining their experiences, beliefs, and decision-making processes, this research seeks to generate a comprehensive theoretical framework that elucidates the key factors driving curriculum development for 21st-century skills. The findings of this study have practical implications for educational institutions, policymakers, and curriculum developers. By uncovering the influential factors and understanding their interactions, this research contributes to evidence-based decision-making in curriculum design, ultimately enhancing educational practices and facilitating the cultivation of 21st-century skills in learners. Moreover, the outcomes of this study serve as a foundation for future research, promoting a deeper understanding of curriculum development processes and its alignment with the dynamic demands of the 21st-century world.

Research Objectives

The research objectives for "Exploring the Factors Influencing Curriculum Development for 21st Century Skills: A Grounded Theory Study" include:

1. Identifying the key factors influencing curriculum development for 21st-century skills in educational institutions.

2. Examining the current practices, challenges, and impact of cultural, social, and economic factors on integrating 21st-century skills into the curriculum.
3. Providing recommendations for policymakers, curriculum developers, and educators to effectively integrate 21st-century skills into the curriculum and bridge the gap between theoretical understanding and practical implementation.

Research Questions

1. What are the key factors that influence curriculum development for 21st century skills in educational settings?
2. How do involvement of the key stakeholders shape the development and implementation of 21st century skills in curriculum design?
3. Which are the potential outcomes and benefits of incorporating 21st century skills into the curriculum, and how can they be measured and evaluated?

Conceptual Framework
The conceptual framework for this study is based on the following 6 key components:

21st-Century Skills
- Identifying the essential skills required for success in the 21st century, including but not limited to critical thinking, creativity, collaboration, communication, digital literacy, and global awareness.
- Exploring how these skills relate to the needs and expectations of the future workforce, society, and individual well-being.

Stakeholder Perspectives
- Exploring the perspectives of various stakeholders involved in curriculum development, including teachers, policymakers, administrators, industry professionals, students, and parents.
- Understanding their beliefs, values, and attitudes towards 21st-century skills and curriculum development.

- Inquiring how different stakeholder perspectives influence the curriculum development process.

Contextual Factors
- Identifying the contextual factors that impact curriculum development for 21st-century skills, such as educational policies, national standards, cultural norms, economic factors, and technological advancements.
- Investigating how these factors shape the goals, content, and delivery methods of the curriculum.

Educational Practices and Strategies
- Examining the existing educational practices and strategies used to integrate 21st-century skills into the curriculum.
- Identifying effective approaches, pedagogies, and assessment methods employed in curriculum development.
- Exploring the challenges and barriers faced in implementing and sustaining curriculum changes.

Curriculum Development Process
- Analyzing the process of curriculum development for 21st-century skills, including the identification of learning objectives, content selection, instructional design, assessment strategies, and continuous improvement mechanisms.
- Exploring the role of collaboration, professional development, and capacity building in the curriculum development process.

Grounded Theory Approach
- Utilizing a grounded theory methodology to explore the factors influencing curriculum development for 21st-century skills.
- Conducting data collection through interviews, observations, and document analysis to generate theory from the data.
- Iteratively analyzing and coding the data to identify emerging themes, categories, and relationships.
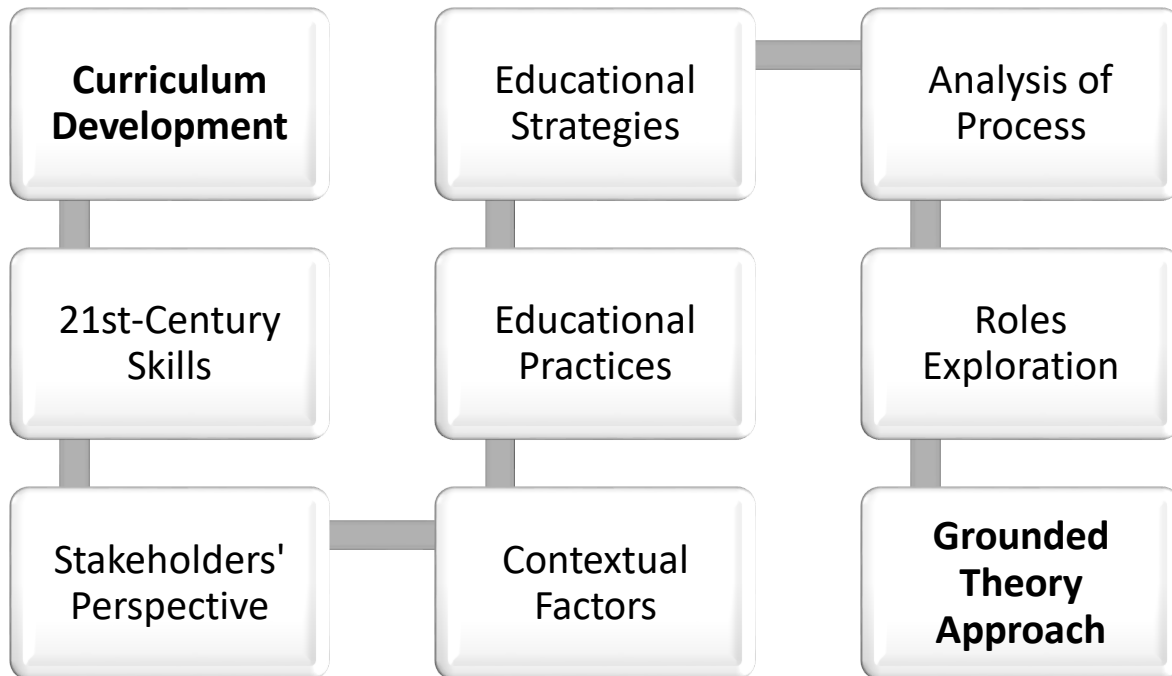
Curriculum Development	Educational Strategies	Analysis of Process
21st-Century Skills	Educational Practices	Roles Exploration
Stakeholders' Perspective	Contextual Factors	**Grounded Theory Approach**

Figure 1.0: Showing Conceptual Framework

Literature Review

This literature review discusses the complexity of curriculum development and emphasizes the importance of understanding contextual factors that influence its design and implementation. The literature review aims to summarize research conducted within the past decade on contextual factors in curriculum development and their impact on educational outcomes. It focuses on identifying key contextual factors and their implications for curriculum development. The passage also highlights the role of pedagogical factors in shaping effective curriculum development, including instructional strategies, learner-centered approaches, and assessment methods. Additionally, it acknowledges that curriculum development involves various stakeholders who play significant roles in shaping and implementing educational programs. Understanding the factors that influence stakeholder engagement and decision-making is crucial for effective curriculum development. The literature review aims to explore these key stakeholder factors and their impact on program outcomes.

Socioeconomic Factors
One critical contextual factor influencing curriculum development is the socioeconomic status (SES) of students. Research by Johnson and Mead (2017) found that students from low-income backgrounds often face challenges related to resources, parental involvement, and access to educational opportunities. These factors necessitate the consideration of differentiated instructional strategies, targeted support programs, and culturally responsive pedagogies to ensure equitable curriculum development and implementation (Smith, 2020; Tas, 2022).

Cultural and Linguistic Diversity
The increasing cultural and linguistic diversity in classrooms presents another important contextual factor. Studies by Garcia and Sylvan (2019) have highlighted the importance of incorporating multicultural perspectives into the curriculum to promote inclusivity and address the needs of diverse learners. Additionally, research by Lee and Nguyen (2018) emphasized the significance of integrating students' native languages and cultural backgrounds into the curriculum to enhance engagement and academic success.

Technological Advancements
Rapid advancements in technology have also emerged as a significant contextual factor influencing curriculum development. Research by Smith and Johnson (2021) demonstrated the potential

of educational technology in fostering personalized and interactive learning experiences. Integrating technology into the curriculum requires considerations of infrastructure, teacher training, and digital literacy skills among students (Davis & Taylor, 2019). It is crucial for curriculum developers to leverage technology effectively to meet the evolving needs of learners in the digital age.

Policy and Accountability Measures
Policy frameworks and accountability measures that are established by educational authorities shape curriculum development practices. Research by Anderson et al. (2016) explored the impact of standardized testing and high-stakes accountability systems on curriculum design. The study revealed a narrowing of curriculum scope and an emphasis on test preparation. Curriculum developers must strike a balance between meeting policy requirements and fostering holistic, comprehensive learning experiences (Jones & Smith, 2022).

Teacher Professional Development
The professional development of teachers is a critical contextual factor influencing curriculum implementation. Research by Wilson and Thompson (2018) emphasized the significance of ongoing training and support for teachers to effectively implement curriculum innovations. Effective professional development programs should provide teachers with the necessary knowledge, skills, and resources to align their instructional practices with the intended curriculum goals (Johnson, 2020).

Instructional Strategies
Effective instructional strategies are vital for curriculum development. Research suggests that a combination of direct instruction and active learning approaches yields positive outcomes (Johnson, 2018). Direct instruction involves explicit teaching of content, while active learning engages students in meaningful activities to deepen understanding. For example, problem-based learning (PBL) has shown positive effects in enhancing critical thinking skills and knowledge acquisition (Savery & Duffy, 2015). PBL engages students in authentic problem-solving scenarios, promoting active engagement and application of knowledge.

Learner-Centered Approaches

Adopting learner-centered approaches is another critical pedagogical factor in curriculum development. Learner-centered approaches shift the focus from the teacher to the student, promoting student autonomy, engagement, and motivation. A study by Vygotsky (1978) emphasized the importance of social interaction and scaffolding in learning. Cooperative learning, an approach that encourages collaboration and peer interaction, has been found to enhance academic achievement and social skills (Johnson & Johnson, 2014). Implementing learner-centered strategies, such as project-based learning or inquiry-based learning, can foster students' critical thinking, problem-solving abilities, and self-directed learning (Krajcik et al., 2014).

Assessment Methods
Appropriate assessment methods play a vital role in curriculum development as they provide valuable feedback on student progress and instructional effectiveness. Research highlights the importance of using a variety of assessment methods to measure different aspects of learning (Wiggins, 2012). Traditional forms of assessment, such as tests and quizzes, provide insight into students' knowledge retention. However, alternative assessments, including portfolios, presentations, and performance-based assessments, offer opportunities for students to demonstrate their understanding and skills in authentic contexts (Black & Wiliam, 1998). These alternative assessments promote deeper learning and provide a comprehensive view of students' capabilities.

Stakeholder Engagement in Curriculum Development
Stakeholder engagement is vital for successful curriculum development as it ensures that the needs and perspectives of different stakeholders are considered. Johnson and McClure (2018) emphasize the importance of involving various stakeholders, including teachers, administrators, parents, and community members, in the curriculum development process. Their involvement promotes a sense of ownership, increases commitment, and enhances the relevance of the curriculum to the diverse needs of learners.

Teacher Involvement and Expertise

Teachers are central stakeholders in curriculum development due to their expertise and direct interactions with students. Research by Smith and Love (2019) highlights the positive impact of involving teachers in decision-making processes. When teachers have a voice in curriculum development, they are more likely to feel valued, motivated, and committed to implementing the curriculum effectively. Furthermore, their practical knowledge and insights can lead to the development of more realistic and student-centered curricula (Sulaiman, & Ismail, 2020).

Administrator Leadership and Support
Effective leadership from administrators is crucial for successful curriculum development. According to Chen and Zhao (2021), administrators play a significant role in setting the vision, allocating resources, and creating a supportive environment for curriculum development. Their leadership and support influence stakeholder engagement, collaboration, and the implementation of the curriculum. Administrators who demonstrate a strong commitment to curriculum development can inspire and motivate stakeholders to actively participate in the process (Drake & Reid, 2020).

Parent and Community Involvement
Parents and community members are essential stakeholders who can provide valuable input in curriculum development. Research by Thompson and Deis (2020) emphasizes the importance of involving parents and community representatives in decision-making processes. Their perspectives can reflect community values, cultural diversity, and real-world applications of the curriculum. Involving parents and community members fosters a sense of shared responsibility and promotes a more comprehensive and inclusive curriculum (Chuang & Ting, 2021).

Policy and External Influences
External factors, such as educational policies, standards, and regulations, significantly impact curriculum development. Mertens and Anwar (2022) highlight the influence of national and state policies on curriculum design and implementation. Compliance with these policies is essential for ensuring consistency and alignment with educational goals. However, it is crucial to strike a balance between external requirements and stakeholder needs to create a curriculum that is both relevant and effective (Priestley et al., 2021).

Methodology

Methodology section covers research design including data collection, open coding, axial coding, selective coding and theory development. Similarly, research participants and data analysis methods are also discussed in this section.

Research Design
Grounded theory approach has been selected for this particular study which is a qualitative research methodology that aims to develop theories or concepts that emerge from data rather than being imposed on it (Bryant & Charmaz, 2007). This approach can also be applied to curriculum development, where the goal is to develop a curriculum that is grounded in the needs, experiences, and perspectives of learners, teachers, and other stakeholders. In this approach, the curriculum development process involves iterative cycles of data collection, analysis, and theory development.

Data Collection
The first step in the grounded theory approach to curriculum development for 21st century skills was data collection. This process involved conducting semi-structured interviews, observations, and document analysis to gather information about the learners, teachers, and context of the curriculum (Charmaz, 2014). These data sources provided rich insights into the needs, experiences, and perspectives of stakeholders, which served as the foundation for theory development.

Open Coding
Once the data was collected, the next step was to engage in open coding, which involved systematically analyzing the data to identify key concepts and categories (Glaser & Strauss, 1967). In this stage, the researchers read and re-read the available data, line by line, to generate initial codes that captured the main ideas, experiences, and issues. This process also allowed for the identification of patterns and themes that emerged from the data.

Axial Coding

The next step in the grounded theory approach was the axial coding, which involved categorizing and connecting the initial codes to develop a more coherent understanding of the data (Charmaz, 2014). This process also s involved relating the categories to each other through a process of constant comparison, seeking relationships and connections between different concepts and themes. Axial coding helped in organizing the data into a comprehensive framework.

Selective Coding

In the selective coding stage, the researchers focused on identifying a central concept or core category that integrated and explained the relationships between the categories identified in the previous stages (Glaser & Strauss, 1967). This core category represented the central phenomenon or theme that emerged from the data and provided a theoretical lens through which the curriculum could be developed. The core category helped to guide the selection and sequencing of content and learning experiences in the curriculum.

Research Participants

Creswell (2014) suggests 20 to 30 research participants for the grounded theory qualitative research. For this grounded theory study on curriculum development, total 22 research participants were selected using purposeful sampling, aiming for maximum variation to ensure diverse perspectives and experiences. The participants included SSC & HSC level teachers, administrators, parents, curriculum specialists, and policymakers from various educational settings including, secondary schools, higher secondary schools, colleges, and other education related institutions such as Sindh Text Book Board Jamshoro. The details of these diverse groups of the research participants are given below.

*Participants Group 1 (PG-1)***:** Total 4 experienced SSC/HSC school teachers, provided insights into the challenges faced by teachers in implementing curriculum changes and the strategies they employed to address those challenges.

*Participant Group 2 (PG-2)***:** Was based on 3 curriculum specialists, who shared expertise in designing and evaluating curriculum frameworks.

Participant Group 3 (PG-3): Total 3 higher secondary school heads, who contributed by sharing their perspectives on aligning curriculum with educational policies and the impact on student outcomes.

Participant Group 4 (PG-4): Total 4regionallevel education officers, offered insights into the practical aspects of curriculum implementation at a larger scale including social, political and policy contexts shaping curriculum development decisions and their implications for educational institutions..

Participant Group 5 (PG-5): Was a group of4 well-educated parent representatives, provided a valuable perspective on the role of parents in curriculum development and their expectations from the educational system.

*Participant Group 6 (PG-6)*Total4 senior level students contributed by giving insights regarding the needs for curriculum development meeting the requirements of the 21st century skills.

These participants collectively formed a diverse group that provided rich and varied data, allowing for a comprehensive exploration of the phenomenon of curriculum development in the grounded theory study.

Data Collection Procedure

All the key components including participants selection, informed consent, individual interviews, observations, documents analysis, member checking, data saturation point, data management, data analysis, and theory development were given tip priority in order to ensure reliability and validity of this particular study. All the above mentioned key components are highlighted below.

Participants Selection
a. Identified potential participants who have experience or expertise in curriculum development and are important stakeholders in the process of curriculum development. This process included experienced teachers, curriculum coordinators, administrators, parents, and curriculum specialists.
b. Ensured diversity in participant characteristics such as educational background, teaching experience, subject

area, and school or college type (e.g., public, private, urban, rural).

Informed Consent
a. Developed a consent form outlining the purpose, procedures, potential risks and benefits, confidentiality, and voluntary nature of participation.
b. Provided the consent form to potential participants, allowing them sufficient time to review and ask questions.
c. Obtained written consent from each participant before proceeding with data collection.

Individual Interviews
a. Conducted semi-structured interviews with each group of participants individually.
b. Prepared an interview guide with open-ended questions related to curriculum development, such as their experiences, challenges faced, strategies employed, and perspectives on effective curriculum design.
c. Recorded the interviews with the participants' permission by audio including taking detailed notes during the interviews.
d. Encouraged participants to elaborate on their responses and provide examples from their experiences.
e. Probed for additional information or clarification when necessary.

Observations
a. Arranged for opportunities to observe participants engaged in curriculum development activities, such as curriculum planning meetings, professional development sessions, or classroom instruction.
b. Took field notes during the observations, focusing on the participants' actions, interactions, and decision-making processes.
c. Requested participants' permission to record observations through audio where it was feasible and appropriate.

Document Analysis
a. Requested participants to provide any relevant documents related to curriculum development, such as curriculum frameworks, scheme of studies (SOS),

lesson plans, assessment materials, or professional development resources.
b. Analyzed these documents to gain additional insights into the participants' perspectives, practices, and the broader curriculum development context.
c. Documented relevant findings from the analysis to complement the interview and observation data.

Member Checking
a. Shared the preliminary findings with the participants to verify the accuracy and interpretation of the collected data.
b. Conducted follow-up interviews or meetings with participants to discuss and validate the emerging themes, concepts, and theories.
c. Incorporated participants' feedback and reflections into the analysis to enhance the credibility and trustworthiness of the findings.

Saturation Point
a. Continued data collection until theoretical saturation was reached, meaning that new data no longer provided significant insights to the emerging theory.
b. Monitored the data collection process and assessed when sufficient information was gathered to develop a comprehensive understanding of curriculum development.

Data Management:
a. Maintained strict confidentiality of all collected data, ensuring that personal identifying information is removed or anonymized.
b. Organized and stored the data securely, using appropriate methods such as password-protected electronic files or locked cabinets.
c. Kept a detailed record of data collection activities, including dates, locations, and any relevant contextual information.

Data Analysis
a. Transcribed the interview audio recordings and organized all collected data in a sequence.
b. Adopted a coding approach, such as open coding, axial coding, or selective coding, to

identify themes, categories, and relationships within the data.

c. Iteratively analyzed the data, comparing and contrasting different participants' perspectives and experiences to refine the emerging theory.

d. Used memoing to capture insights, reflections, and connections during the analysis process.

Theory Development

The final step in the data collection approach to curriculum development for the 21st century skills was theory development. In this stage, the researchers engaged in theoretical sampling, which involved collecting additional data to refine and validate the emerging theory (Charmaz, 2014). The theory was continually revised and refined based on new data and insights, leading to the development of a curriculum that is grounded in the experiences and needs of the learners and teachers.

a. Based on the identified patterns, themes, and relationships in the data, developed a grounded theory that explains the curriculum development process and its influencing factors.

b. Continuously referred back to the data to ensure that the developed theory is grounded in the participants' experiences and data collected.

c. Wrote a comprehensive report detailing the research findings, methodology, and the resulting grounded theory, following the established academic conventions.

d. Adopted deductive approach while developing a ground theory focusing ontological (constructivism) stance.

Results

The analysis of data revealed several factors influencing curriculum development. These factors were classified into three main categories: contextual factors, stakeholder factors, and pedagogical factors. Each category encompasses various sub-factors, as outlined below (Also see Table 1):

Contextual Factors: Contextual factors include two sub-factors including societal context and educational context that are further elaborated through different variables.

a. Societal Context

The understanding of human behavior and societal dynamics is a complex endeavor, requiring a comprehensive analysis of various contextual factors. **PG-5** expressed their opinion that *"understanding the contextual factors that influence human behaviour and societal dynamics is essential"*. **PG-5** *further expressed their views that "among these factors, the societal context plays a crucial role"*.

- **Cultural Values & Beliefs**
  Cultural values and beliefs shape the norms, attitudes, and behaviors of individuals within a society. They provide a framework for understanding what is considered acceptable, desirable, and meaningful. **PG-2** stated that *"No curriculum can fulfill the needs of a society without giving importance to the cultural values and beliefs"*. These values and beliefs can encompass a wide range of aspects, including religion, traditions, gender roles, and ethical principles. **PG-2** further added that "*Cultural diversity adds richness to societies, but it can also lead to clashes and conflicts where traditional and outdated education system still exists*".

- **Social, Economic, & Political Conditions**
  Societies are influenced by social, economic, and political conditions, which in turn, shape the opportunities, resources, and power dynamics within a community. In this regard, **PG-4** shared his views that *"social conditions encompass factors such as social stratification, class structures, and demographic trends"*. **PG-4** also talked about the economic conditions and told that "economic conditions involve factors like income distribution, employment rates, and economic policies".

- **Technological Advancements**
  Technological advancements have revolutionized societies, transforming the way people communicate, work, and live. From the industrial revolution to the digital age, technological progress has had

profound effects on societal structures. **PG-6** stated that *"advancements in information and communication technology, automation, artificial intelligence, and biotechnology have reshaped industries, employment patterns, and social interactions"*. While technology offers opportunities for innovation and progress, it also presents challenges related to privacy, equity, and the digital divide. **PG-6** stressed the inclusion of technology in modern days teaching and learning process. They told that *"in 21st century education looks incomplete without the inclusion of technology"*.

b. Educational Context

In the field of education, numerous factors shape the learning environment and influence educational outcomes. One crucial aspect to consider is the contextual factors that impact the educational landscape at both national and local levels. **PG-1** suggested that *"understanding the contextual factors is vital for teachers, curriculum developers, and other stakeholders in creating effective educational systems that meet the needs of students and facilitate their academic growth"*.

- **National & Local Educational Policies**
  National and local educational policies serve as a framework that guides the direction and goals of the education system. These policies are typically established by government bodies and reflect the values, priorities, and aspirations of the society. According to **PG-2,** *"National Curriculum Development Policy sets the broad agenda for education across the country, while local policies allow for flexibility and customization based on regional needs. The impact of educational policies cannot be assessed properly without taking input from all the stakeholders"*. In the opinion of **PG-4**, *"Policies may address issues such as access to education, equity, teacher training, assessment methods, and student support services"*.

- **Legal & Regulatory Frameworks**
  Legal and regulatory frameworks provide the legal foundation for the education system

and ensure its smooth functioning. They are designed to protect the rights of students, teachers, and other stakeholders, ensuring fairness and equity within the education system. They these frameworks were mentioned in documents but on ground they were not in practice. **PG-3** expressed their views that *"legal frameworks also address issues related to student discipline, special education, privacy and data protection, as well as curriculum content"*.

- **Curriculum Standards & Guidelines**
  Curriculum standards and guidelines define the knowledge, skills, and competencies that students are expected to acquire at different stages of their education. They provide a roadmap for teachers to design instructional plans, select teaching materials, and assess student progress. **PG-2** told that *"curriculum standards are often developed at the national or state level, outlining the learning objectives across subject areas"*. Whereas **PG-4** added that *"the well-designed curriculum standards promote consistency and coherence in education, ensuring that students receive a high-quality education regardless of their location or school"*.

Stakeholder Factors: Stakeholder factors include four sub-factors including learner factor, teacher factor, administrative factor, as well as parent and community factor. These sub-factors also include different variables which are elaborated as below.

a. Learner Factor

In any educational setting, understanding the various factors that influence learning outcomes is crucial for educators and stakeholders. All the 6groups of research participants agreed that one significant category of factors is learners' factor, which encompasses aspects such as age, developmental stage, prior knowledge, learning styles and preferences, as well as diversity and special needs. However, ground realities were quite different in this regard. On ground, importance for learners' factor was missing as mentioned in the documents.

- **Age, Developmental Stage, & Prior Knowledge**

Age and developmental stage play essential roles in shaping a learner's educational experience. Younger learners, for instance, require different teaching approaches compared to older students. In the opinion of **PG-1** *"young children may benefit from interactive and hands-on activities, while older learners may require more abstract and analytical teaching methods"*. Additionally, prior knowledge greatly influences how new information is acquired and processed. **PG-3** told that "*students with a solid foundation in a subject may grasp new concepts more easily while those lacking prior knowledge might require additional support and scaffolding*".

- **Learning Styles & Preferences**
  Every individual possesses unique learning styles and preferences. Some learners may be visual learners who benefit from diagrams and images, while others may be auditory learners who comprehend information better through verbal explanations. Kinesthetic learners, on the other hand, prefer hands-on activities. **PG-5** shared their experiences that *"recognizing and accommodating these diverse learning styles and preferences can significantly enhance student engagement and understanding"*. However, preference to different learning styles and considering the needs of the kinesthetic learners was missing in both policy documents and on ground practices.

- **Diversity & Special Needs**
  The educational landscape is characterized by a rich tapestry of diverse learners.**PG-1** endorsed that "*students come from various cultural, linguistic, and socio-economic backgrounds, each with their own strengths, challenges, and perspectives*". Moreover, learners with special needs require tailored support and accommodations to ensure equal access to education. This may include individualized learning plans, assistive technologies, or specialized teaching strategies. Though the diversity of learners and their special needs were mentioned in documents but on ground implementation was missing.

b. Teacher Factor

Teachers are an integral part in any educational setup**.** Teachers play a very significant and main role in the process of imparting quality education. **PG-6** expressed their views that "*in any educational setting, teachers play a crucial role in shaping the learning experience for students*". **PG-5** further added that *"teachers serve as key stakeholders whose actions and characteristics can significantly impact on students of different levels in an educational process"*.

- **Educational Qualifications & Expertise**
  One of the most influential factors that affect stakeholders is the teacher's educational qualifications and expertise. **PG-4** reflected that *"teachers who possess higher levels of formal education and specialized training bring valuable knowledge and skills to the classroom"*. Additionally, **PG-3** expressed their views that *"teachers' expertise allows them to effectively deliver content, design engaging lessons, and foster a deeper understanding of the subject matter"*. Students benefit from the in-depth understanding and expertise of highly qualified teachers, which can enhance their learning outcomes and academic achievements. This was also clearly reflecting during on ground observations.

- **Teaching Styles & Strategies**
  Another significant factor influencing learners is the teaching styles and strategies employed by teachers. Every teacher has a unique approach to instruction, which can have a profound impact on students' learning experiences. **PG-2** told that *"some teachers may still adopt traditional, lecture-based methods, while others might incorporate more innovative and student-centered approaches such as project-based learning or collaborative activities. Stakeholders, particularly students, are affected differently by various teaching styles"*. In this regard, **PG-3** expressed their views that *"engaging students through interactive teaching methods often result in higher student motivation, participation, and retention of*

knowledge". During on ground observations, it was observed that some teachers still prefer traditional methods of teaching over innovative and students centered methods of teaching.

- **Beliefs& Attitudes towards Curriculum**
  Teachers' beliefs and attitudes towards the curriculum they deliver significantly impact stakeholders. **PG-2** shared their opinion that *"teachers who possess a positive attitude towards the curriculum and believe in its relevance and importance tend to be more motivated, enthusiastic, and effective in their teaching*". Such teachers strive to create meaningful learning experiences, connect curriculum concepts to real-world applications, and foster a love for learning among students. However, **PG-6** told that *"teachers with negative attitudes towards the curriculum may inadvertently undermine its value and fail to inspire students*".

c. Administrator Factor

PG-4 expressed their experience and views that *"administrators play a crucial role in shaping the success of organizations and institutions across various sectors*". Their leadership styles, decision-making processes, resource allocation and management strategies, as well as support for professional development, significantly impact the effectiveness and growth of their teams. However, during documents analysis it was quite clear that administrators have given less support by the higher authorities including provincial and national government bodies.

- **Leadership Styles & Decision-making Processes**
  PG-1 said that *"leadership styles vary among administrators and significantly influence the overall functioning of their teams*". Similarly, **PG-4** responded that *"autocratic leaders make decisions independently, with limited input from their team members*". This approach can be effective in urgent situations but may hinder creativity and team morale. Democratic leaders, on the other hand, encourage participation and collaboration, allowing

team members to provide input and contribute to the decision-making process. This fosters a sense of ownership and promotes innovative solutions. **PG-6** shared their views that *"transformational leaders inspire and motivate their teams by setting high expectations and emphasizing personal growth*".

- **Resource Allocation & Management**
  Effectively allocating and managing resources is essential for organizational success. Administrators must assess the needs of their teams and allocate resources, including financial, human, and material, accordingly. According to **PG-4,** *"financial resources must be managed efficiently, ensuring optimal utilization while balancing budgets*". Similarly, according to **PG-2**, *"human resources involve assigning tasks, managing workloads, and developing strategies to enhance employee productivity and job satisfaction*". Whereas, according to **PG-3**, "*material resources encompass equipment, technology, and physical spaces that support efficient operations*". During documents analysis and on ground observation meager budget, inappropriate resources allocation, and mismanagement were seen to a great extent.

- **Support & Professional Development Opportunities**
  PG-2 responded that "*providing support and professional development opportunities is vital for teachers and administrators regarding curriculum development and effectively teaching*". They must create a supportive environment that promotes growth, learning, and collaboration among students. **PG-4** suggested that *"administrators can offer mentorship programs, coaching sessions, and training workshops to enhance teachers' skills and knowledge*". By investing in professional development, administrators foster a culture of continuous learning and improvement. However, support and professional development opportunities were missing in documents and on ground observations.

d. Parent and Community Factor

In the realm of education, the influence of parents and the community cannot be overstated. Both parents and the broader community play pivotal roles in shaping the learning environment and the educational outcomes of children. **PG-3** responded that *"the smooth process to imparting quality education and developing an effective curriculum is impossible without active participation of parents and community"*. However, **PG-6** told that *"parents and other members of the community are not given importance by the government. Their input is also not considered for the betterment and improving quality education"*.

- **Parental Expectations & Involvement**
  Parental expectations serve as a compass for a child's educational journey. When parents set high expectations for their children's academic performance and personal growth, it can ignite motivation, instill a sense of purpose, and drive achievement. Moreover, **PG-3** told that *"involved parents, who actively participate in their child's education by attending parent-teacher conferences, engaging in discussions about their child's progress, and providing support at home, create a positive impact on the child's educational experience"*.

- **Community Values & Aspirations**
  Communities play a vital role in shaping the educational landscape. The collective values, aspirations, and attitudes toward education within a community significantly impact the quality of learning opportunities available to children. **PG-4** responded that *"a community that values education tends to prioritize investments in schools, educational infrastructure, and resources"*. It fosters an environment that supports educational initiatives, recognizes the importance of continuous learning, and celebrates educational achievements.

- **Collaboration & Partnerships**
  Collaboration and partnerships between parents, schools, and the community create a powerful alliance for enhancing educational outcomes. **PG-4** told that *"when parents, teachers, school administrators, and community members collaborate, they can pool their collective knowledge, expertise, and resources to create holistic learning experiences for students"*. Partnerships with local businesses, nonprofits, and community organizations can provide valuable opportunities for students to engage in real-world learning, internships, mentorships, and exposure to diverse career pathways.

Pedagogical Factors: Pedagogical factors include three sub-factors including learning goals and objectives, teaching and learning strategies, as well as assessment and evaluation. Additionally, these sub-factors consist different variables which are further elaborated as below.

a. Learning Goals and Objectives

All the research participants agreed that in the realm of education, the establishment of clear learning goals and objectives is vital for effective teaching and learning. These pedagogical factors provide a roadmap for educators, guiding them in shaping students' educational experiences and fostering their growth.

- **Subject-Specific Knowledge & Skills**
  One fundamental aspect of learning goals and objectives is the acquisition of subject-specific knowledge and skills. These encompass the core content and concepts within a particular subject area. **PG-2** told that *"the attainment of subject-specific knowledge and skills provides students with a solid foundation, enabling them to comprehend and engage with the subject matter effectively"*.

- **Cross-Disciplinary Competencies**
  In addition to subject-specific knowledge, the development of cross-disciplinary competencies is crucial for preparing students to thrive in an interconnected and rapidly evolving world. **PG-4** told that *"cross-disciplinary competencies refer to the ability to apply knowledge and skills across different domains and contexts"*. These competencies facilitate the integration of various disciplines, encouraging students

to make connections and synthesize information from diverse sources. By nurturing these competencies, educators empower students to tackle complex real-world challenges that extend beyond the boundaries of a single subject.

- **Higher-Order Thinking & Problem-Solving Skills**
  PG-2 expressed their views that "*while subject-specific knowledge forms the basis, it is equally essential to develop students' ability to think critically, analyze information, and solve problems creatively*". Higher-order thinking skills involve activities such as evaluating evidence, making connections, drawing conclusions, and generating innovative solutions. These skills enable students to become active participants in their learning, rather than passive recipients of information.

b. Teaching and Learning Strategies

PG-3 responded that *"pedagogical factors play a crucial role in shaping effective teaching and learning experiences"*. These factors empower teachers to create dynamic and engaging learning environments that cater to diverse student needs and foster meaningful educational outcomes.

- **Active Learning Approaches**
  As per the views of **PG-1**, *"active learning approaches emphasize student participation and engagement in the learning process"*. Rather than relying solely on passive instruction, active learning encourages students to become active participants in their own education. Adding into it, **PG-6** suggested that "*active learning and pedagogical strategy promotes critical thinking, problem-solving skills, collaboration, and deeper understanding*".

- **Differentiated Instruction**
  Differentiated instruction recognizes that students have diverse learning styles, abilities, and interests. This pedagogical factor involves tailoring teaching methods, content, and assessment to meet individual student needs. **PG-2** suggested that *"by*

acknowledging and accommodating the unique strengths and challenges of each student, teachers can create inclusive classrooms that foster academic growth and personal development".

- **Integration of Technology**
  In today's digital age, the integration of technology has become an essential pedagogical factor. Technology tools and resources provide opportunities to enhance teaching and learning in numerous ways. **PG-6** expressed his views that *"technology tools facilitate access to vast amounts of information, promote interactive and immersive experiences, and enable collaboration beyond the traditional classroom boundaries"*.

c. Assessment and Evaluation

Assessment and evaluation play crucial roles in the field of education. In fact, both these components are an integral part of the curriculum development in the context of 21st century skills development. According to **PG-3** *"both assessment and evaluation serve as powerful tools for measuring students' learning progress, identifying areas for improvement, and providing valuable feedback to both learners and teachers"*.

- **Formative & Summative Assessment Practices**
  Formative assessment focuses on the ongoing evaluation of students' learning progress during instructional activities. Its primary purpose is to provide feedback and guidance to learners, enabling them to improve their understanding and skills. **PG-2** suggested that *"formative assessments can take many forms, such as quizzes, class discussions, peer evaluations, and teacher observations"*. Similarly, **PG-3** expressed their views that "*by integrating formative assessment practices into the learning process, teachers can make timely adjustments to their teaching strategies and tailor instruction to individual students' needs*".

- **Authentic & Performance-Based Assessments**

  Authentic assessments aim to mirror real-life situations and tasks that students might encounter outside the classroom. These assessments require students to apply their knowledge and skills in practical and meaningful ways. Examples of authentic assessments include case studies, simulations, research projects, and presentations. **PG-2** shared their views that *"by engaging students in authentic assessment tasks, educators can foster critical thinking, problem-solving, and creativity, while also promoting deeper understanding and transfer of knowledge"*.

- **Feedback & Grading Systems**

  Feedback is an integral part of the assessment process and plays a vital role in supporting students' learning. **PG-5** expressed his views that *"effective feedback provides specific information about students' strengths, areas for improvement, and suggestions for further development"*. It should be timely, constructive, and tailored to individual students' needs. According to **PG-3** "*feedback can be provided through written comments, verbal discussions, self-assessment, or peer feedback*"

Table 1: Showing main & sub-factors including variables based on available results

Main Factor	Sub-factors	Variables
Contextual Factor	Social Context	▪ Cultural Values & Beliefs ▪ Social, Economic & Political Conditions ▪ Technological Advancements
	Educational Context	▪ National & Local Educational Policies ▪ Curriculum Standards & Guidelines
Stakeholders Factor	Learner Factor	▪ Age, Developmental Stage & Prior Knowledge ▪ Learning Styles & Preferences ▪ Diversity & Special Needs
	Teacher Factor	▪ Educational Qualifications & Expertise ▪ Teaching Styles & Strategies ▪ Beliefs & Attitudes towards Curriculum
	Administrator Factor	▪ Leadership Styles & Decision making Processes ▪ Resource Allocation & Management ▪ Support & Professional Development Opportunities
	Parent & Community Factor	▪ Parental Expectations & Involvement ▪ Community Values & Aspirations ▪ Collaboration & Partnerships
Pedagogical Factor	Learning Goals & Objectives	▪ Subject-specific Knowledge & Skills ▪ Cross-disciplinary Competencies ▪ Higher Order Thinking & Problem-solving Skills
	Teaching & Learning Strategies	▪ Active Learning Approaches ▪ Differentiated Instruction ▪ Integration of Technology
	Assessment & Evaluation	▪ Formative & Summative Assessment Practices ▪ Authentic & Performance-based Assessments ▪ Feedback & Grading Systems

Discussion

The analysis of data highlights several factors influencing curriculum development, categorization into contextual, stakeholder, and pedagogical factors. These factors underscore the intricate interplay between societal dynamics, educational policies, learner characteristics, teaching strategies, and

assessment practices in shaping the educational landscape.

Contextual Factors

Social and educational factors are one of the important contextual factors which we require to give high priority while developing our curriculum for 21st century skills development. Their significance is discussed below.

Societal Context: Understanding cultural values, social, economic, and technological advancements are crucial for curriculum development. However, the challenge lies in balancing traditional beliefs with the needs for modernization. In this regard, education is the source of motivation for balancing traditional beliefs with modernization.

Educational Context: National and local policies, legal frameworks, and curriculum standards provide the structure for educational systems. Yet, the implementation gap between policy documents and on-ground practices needs to be addressed to ensure effective curriculum delivery. However, results of this particular grounded theory study indicate that this is possible only when all the stakeholders are engaged in one way or the other.

Stakeholder Factors

We need to understand that learner, teacher, and administrator factors play a very pivotal role while developing curriculum for 21st century skills enhancement. The available results of this particular study indicated that without understanding the stakeholder factors, we cannot develop an effective curriculum. Their significance is further highlighted below.

Learner Factors: Recognizing learners' diverse needs, including age, developmental stage, learning styles, and special needs, is essential. However, discrepancies exist between policy emphasis and actual implementation, indicating a need for better alignment.

Teacher Factors: Teachers' qualifications, teaching styles, and attitudes towards the curriculum significantly influence student learning experiences. Bridging the gap between traditional and innovative teaching methods is crucial for fostering student engagement and achievement.

Administrator Factors: Effective leadership, resource management, and support for professional development are essential for organizational success. However, inadequate support and resource allocation hinder curriculum implementation and teacher effectiveness.

Parent and Community Factors

Results indicate that alongside contextual and stakeholder factors, parental expectations and involvement as well as community values and aspirations should be given equal weightage while developing a curriculum for the 21st century skills development. These important community factors are discussed as below.

Parental Expectations & Involvement: Active parental involvement positively impacts students' educational experiences. Strengthening partnerships between schools, parents, and the community can enhance student outcomes and create a supportive learning environment.

Community Values & Aspirations: Communities that value education contribute to a conducive learning environment. Collaborative efforts between schools and the community can lead to resource mobilization and the promotion of educational initiatives.

Pedagogical Factors

Results also suggest that without identifying pedagogical factors such as learning goals and objectives as well as teaching and learning strategies, we can't achieve better results in the context of curriculum development for 21st century. This fact is discussed in detail as below.

Learning Goals and Objectives: Clear learning goals and objectives guide educators in shaping students' educational experiences. Emphasizing subject-specific knowledge, cross-disciplinary competencies, and higher-order thinking skills promotes holistic learning.

Teaching and Learning Strategies: Active learning approaches, differentiated instruction, and technology integration enhance student engagement and facilitate deeper learning. Moreover, authentic

assessment practices and timely feedback support student progress and learning outcomes.

Findings

The findings of this grounded theory study emphasize the intricate relationship between various factors in curriculum development. Contextual factors, including societal and educational contexts, provide the broader framework within which curriculum decisions are made. Stakeholder factors highlight the importance of considering learners, teachers, administrators, parents, and community members as active participants in the curriculum development process. Pedagogical factors emphasize the significance of aligning learning goals, teaching strategies, and assessment practices to create meaningful and effective educational experiences.

The following given findings are based on inductive as well as deductive reasoning.

- There is a gap between policy intentions and actual implementation, particularly regarding learner diversity, teaching methodologies, and resource allocation.
- Stakeholders' attitudes and beliefs towards curriculum play a significant role in shaping educational practices and outcomes.
- Collaborative efforts involving teachers, administrators, parents, and the community are crucial for effective curriculum development and implementation.

Based on the above mentioned results and discussion, following figure 2.0 reflects the key grounded theory findings (themes & sub-themes) for curriculum development process to meet the 21st century skills needs. By following this grounded theory, we can surely develop a result oriented curriculum for 21st century skills development.
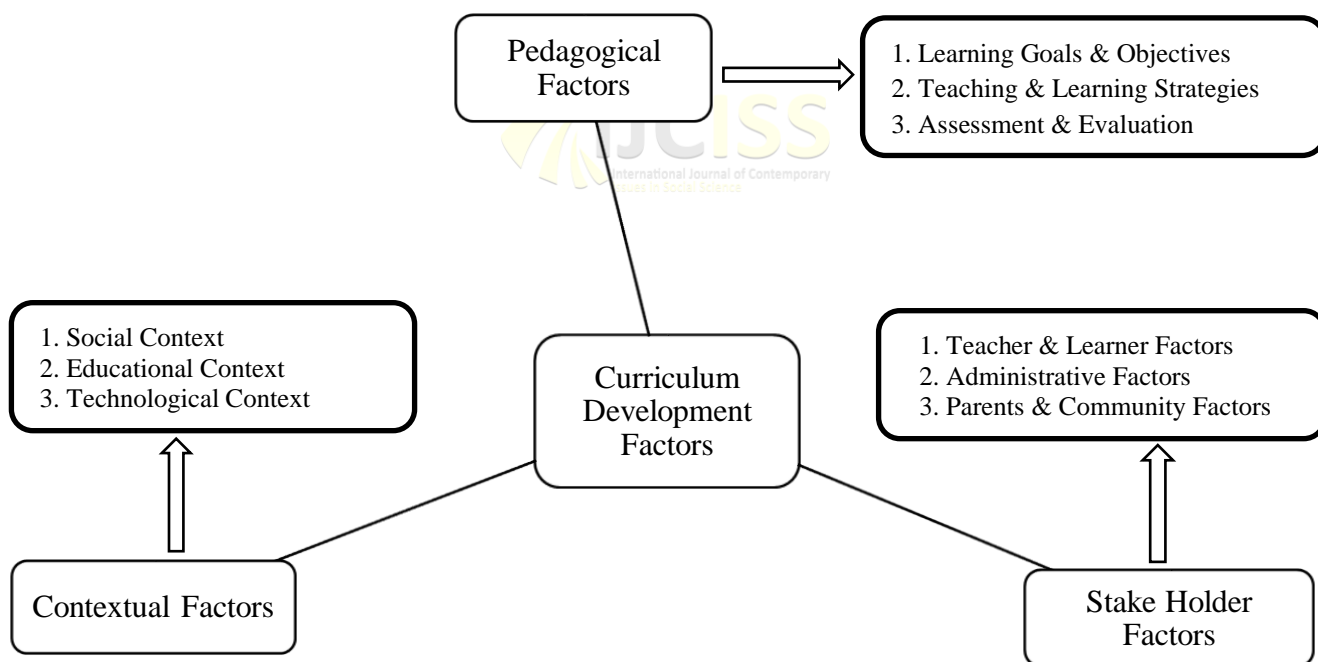

Figure2.0: Showing Curriculum Development Factors

Recommendations

This study contributes to the existing literature by providing a comprehensive understanding and insights of the factors influencing curriculum development. The findings highlight the need for a holistic and collaborative approach to curriculum design, taking into account the contextual, stakeholders, and pedagogical factors. Therefore, by recognizing and considering these factors, curriculum developers can develop a comprehensive

curriculum, meeting the needs and requirements of the 21st Century Skills in Sindh, Pakistan.

In this regard, based on the results and findings of this particular grounded theory study, researchers suggest the following given recommendations for future directions.

- ✓ Develop and align the curriculum as per the needs and requirements of the 21st century skills.
- ✓ Ensure pedagogical, contextual, and stakeholders' factors while developing curriculum.
- ✓ Bridge the gap between policy formulation and implementation by providing adequate resources, training, and support to teachers.
- ✓ Promote diversity and inclusion by integrating learners' needs and preferences into curriculum design and instructional practices.
- ✓ Foster a culture of collaboration and partnership between schools, parents, and the community to support student learning and achievement.
- ✓ Embrace innovative teaching methodologies and leverage technology to enhance student engagement including facilitating personalized learning experiences.
- ✓ Prioritize professional development opportunities for teachers and administrators to enhance their skills, knowledge, and effectiveness in curriculum development, alignment and delivery.

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